NOTE

A Noninjurious Attack by a Small Shark[1]

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ASIDE FROM the general need for thorough documentation of shark incidents (Hobson, et al., 1961:605), the following shark attack is worthy of report for two reasons: (1) The shark was of small size. (2) Immediately prior to attack the shark displayed a behavior pattern which is mentioned only briefly in the literature.

Description of the Incident

The shark, a 3-ft *Carcharhinus menisorrah,* was encountered while the authors were baiting eel traps with freshly speared fish in a large pothole in the lagoon reef at Johnston Island. At the time (1400 hours, 19 December 1965), water temperature was 26° C and underwater visibility more than 100 ft. The weather was cloudy with intermittent rain, a strong wind was blowing, and the surface of the sea was choppy. Both divers were wearing dark trunks and black neoprene wetsuit jackets.

The attack occurred during an attempt to take the shark by spear for research purposes. Armed with a "Hawaiian sling," Fellows closed to within 7–8 ft of the shark and then began to follow the shark as it swam slowly in a path roughly describing a circle about 50 ft in diameter. During the first lap of the chase, the shark swam in an unexcited manner approximately 5 ft above the bottom of the pothole (which was about 15–25 ft deep). Immediately after beginning the second lap, the shark commenced a radically different swimming behavior; the tailbeat frequency decreased noticeably and the shark simultaneously began to swing the entire anterior portion of the body slowly from side to side in a greatly exaggerated swimming motion. The headswinging was sufficient to bring the entire head profile into view by Fellows, who at this time was directly behind and about 5 ft away from the shark. This behavior was continued for slightly less than half a lap, at which time Fellows surfaced for air. When Fellows surfaced, the shark, swimming over a coral mound, rose to within approximately 6 ft of the surface, passed directly below Murchison, and descended back to within 5 ft of the bottom. As the shark approached Murchison during its ascent, the exaggerated swimming motion stopped. Immediately after passing under Murchison the shark began to swim more rapidly, resumed the exaggerated manner of swimming, and, when 25 ft away, turned and made a very rapid dash directed at Fellows's arm. During the approach the shark's mouth was open approximately 1 inch. Fellows twisted violently aside, and the shark missed his arm and passed between his legs. When five ft behind Fellows, the shark turned and made a second high-speed pass. On this pass the diver's swim fin made solid contact with the shark, but whether contact was due to Fellows's thrashing or to directed attack by the shark is uncertain. Either way, contact was sufficient to discourage the shark, which rapidly departed from the area. During the two passes the divers were about 7 ft apart.

Discussion

Although the total time of the encounter with the shark occupied less than 3 minutes, and the duration of the actual attack less than 10 seconds, both observers readily noted four items: (1) At the beginning of the chase the shark showed no overt response to the divers' presence. (2) The headswinging behavior began only after the pursuer got within what appeared

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to be a critical distance. (3) Headswinging behavior immediately preceded attack behavior. (4) Headswinging behavior appeared only when the diver was behind the shark.

The same exaggerated swimming motion has been reported by Hobson (1961:29) as occurring in at least two species of *Carcharhinus*. In one case the behavior immediately prefaced an attack on a diver at Wake Island. The present authors agree with Hobson's opinion that the behavior permits the maintaining of visual contact with an object directly behind the shark, but they also suggest that the behavior might signal an intention of attack on the part of a harassed shark.

It is the opinion of the authors that the incident reported here was a defensive behavior by the shark, provoked by pursuit in a confined area.

REFERENCES

HOBSON, E. S. 1961. Sharks increasing visual field. Underwater Naturalist 2:29.

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